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STUDIES IN THE ORTHOPTEROUS SUBFAMILIES ACRYDIINÆ (TETTIGINÆ),  
EUMASTACINÆ AND PROSCOPINÆ.

BY JAMES A. G. REHN.

The material treated in the following pages is contained in the collections of the Academy, the United States National Museum and of Mr. Morgan Hebard, of Chestnut Hill, Philadelphia. The material studied consisted of two hundred and twenty-seven specimens, representing forty-six species and thirty-one genera, of which one genus and twelve species are described as new. The author wishes to thank Dr. W. H. Ashmead, of the U. S. National Museum, and Mr. Hebard for their kindness in permitting the use of material.

Subfamily ACRYDIINÆ (*Tettiginæ* auct.).

Section **Cladcnotæ**.

**DASYLEUROTETTIX**<sup>1</sup> n. gen.

Allied to *Diotarus* and *Trachytettix* Stål, but differing from the former in the presence of tegmina and wings, the rugulose vertex, deplanate and scabrous pronotum, and the truncate character of the cephalic margin of the same. From *Trachytettix* it is separated by the form of the antennæ, the unspined vertex, the longer cephalic femora and the position of the antennæ.

Form depressed, subquadrate in transverse section at the humeral angle; surface scabrous. Facial scutellum with a V-shaped longitudinal excavation, carinæ distinct, subparallel; antennæ placed against the carinæ of the facial scutellum and distant from the eyes, apex of width equal to the remainder of the appendage, vertex broad, about twice the width of one of the eyes. Pronotum truncate cephalad, produced caudad beyond the tips of the caudal femora; humeral angle prominent. Cephalic femora nearly three times as long as wide. Caudal femora heavy and with the paginæ moderately sculptured. Posterior metatarsi distinctly longer than the third tarsal joints.

**D. syleurotettix curriei** n. sp.

Types: ♂ and ♀; Mount Coffee, Liberia. April, 1897. (R. P. Currie.) [U. S. Nat. Mus., No. 8111.]

Head short and broad; vertex transverse, the cephalic margin trun-

<sup>1</sup> *δασυς* rough, *λευρος* flat, *τettix* grasshopper.

cate and without a distinct frontal carina; median carina of the vertex low, slightly projecting cephalad; facial scutellum longitudinal, subparallel, the margins arcuate and the costa distinctly sinuate above and below; antennæ inserted on a level with the ventral margin of the eyes, placed against the facial scutellum, when extended caudad reaching to the humeral angle of the pronotum; eyes subpyriform in outline, moderately prominent. Pronotum strongly depressed, arcuate cephalad, closely and uniformly scabrous, obscurely lineato-rugose; cephalic margin truncate; humeral angles broad, extended, depressed; lateral lobes with the elytral sinus moderately deep, inferior sinus deep and acute, caudal angle produced and apically truncate; lateral carina scabro-denticulate, obsolete cephalad of the humeral angles; median carina depressed, arcuate cephalad, caudad of the humeral angles irregularly undulate; caudal process long, subulate, extending caudad of the tips of the caudal femora. Tegmina cylindrical ovate, the surface finely tuberculate. Wings large, extending slightly beyond the apex of the caudal process of the pronotum. Ovipositor valves of the female rather short, thick, serrato-dentate. Cephalic femora moderately undulate dorsad and ventrad. Median femora undulate dorsad, trilobate ventrad. Caudal femora short, inflated, femoral lobe short and thick, dorsal carina with several subobsolete points, ventral carina with several subobsolete lobes, external pagina and dorso-lateral face decorated with strong diagonal scabrous ridges; tibiæ strongly spined, the canthi minutely serrate; metatarsi slightly exceeding the remaining tarsal joints in length, pulvilli subequal in length.

General color bistre, the wings with the cephalic margin and a large rounded spot covering the great part of the wing mummy brown, median limbs barred with cinnamon, caudal limbs more or less regularly blotched with obscure cinnamon.

*Measurements.*

	♂	♀
Length of body, . . . . .	10.7 mm.	12 mm.
Length of pronotum, . . . . .	12.5 "	13 "
Greatest width of pronotum, . . . . .	4.8 "	5.2 "
Length of posterior femora, . . . . .	6.5 "	7 "

This curious genus and species is represented by a series of five males and nine females, all of which are from Mount Coffee. Little variation is exhibited by the series, a slight difference in the intensity of the scabrous character of the pronotum being all that is noteworthy. I take pleasure in dedicating this species to my friend Mr. Rolla P. Currie, of the U. S. National Museum, who collected the types.

**PANTELIA** Bolivar.

1887. *Pantelia* Bolivar, Ann. Soc. Entom. Belg., XXXI, pp. 192, 214.

Type.—*P. cristulata* Bolivar (= *Cladonotus horrendus* Walker).<sup>2</sup>

**Pantelia armata** Bolivar.

1893. *Pantelia armata* Bolivar, Ann. Soc. Ent. France, LXII, p. 176. [Assini, Ivory Coast.]

Mount Coffee, Liberia. April, 1897. (R. P. Currie). [U. S. N. M.]  
Three females.

These individuals seem to agree very well with Bolivar's description except that they are somewhat larger. Two of the three specimens have the caudal process of the pronotum produced, the remaining individual having the caudal femora hardly exceeded by the pronotum. These two individuals possess well-developed wings, which extend beyond the process of the pronotum.

The genus *Pantelia* includes three species: *P. horrendus* (Walker<sup>3</sup>) (*P. cristulata* Bolivar), from Sierra Leone and the Ivory Coast; *P. armata* Bolivar from Liberia and the Ivory Coast, and *P. uncinata* Bolivar<sup>4</sup> from Caconda, Angola.

Section **Scelimena**.**SCELIMENA** Serville.

1839. *Scelimena* Serville, Orthoptères, p. 762.

Included *Tetrix producta*, *harpago* and *uncinata* Serville, of which the first may be selected as the type.

**Scelimena abbotti** n. sp.

Type: ♀; Khow Sai Dow, Trong, Lower Siam; 1,000 feet. January–February, 1899. (Dr. W. L. Abbott.) [U. S. Nat. Mus., No. 8112.]

Closely allied to *S. producta*,<sup>5</sup> but differing in the smaller size, the narrower vertex, the slightly more compressed form, the uncurved character of the spines on the lateral angles of the pronotum, and in the absence of protuberances on the ventral carinæ of the posterior femora.

Size medium; form elongate; surface minutely scabrous. Head with the vertex very distinctly narrower than one of the eyes, subtruncate, declivent and rounded cephalad, median carina low but distinct; frontal costa forked between the ocelli; rami little divergent,

<sup>2</sup> Vide Karsch, *Entom. Nachr.*, XVI, p. 27.

<sup>3</sup> *Catal. Spec. Derm. Salt. Brit. Mus.*, V, p. 842.

<sup>4</sup> *Jornal Scienc. Math. Phys. Nat. Lisboa*, 2a ser., I, p. 217.

<sup>5</sup> Compared with a pair of *S. producta* presented by Dr. Saussure.

when viewed laterad distinctly arcuate and sinuate dorsad; antennæ slender, about two-thirds the length of the caudal femora, inserted on a level with the ventral margin of the eyes; paired ocelli placed half-way between the vertex and the insertion of the antennæ; eyes subglobose, quite prominent; somewhat elevated. Pronotum elongate, depressed dorsad, surface undulate with rounded boss-like elevations; cephalic margin truncate, cephalic lateral spines short and blunt; lateral carinæ parallel cephalad; lateral spines strong, depressed, directed laterad without any cephalic curve; inferior sinus rectangular; humeral angle little extended and represented by the lateral carinæ; median carina low, fading caudad and subobsolete between the sulci; elevations of the pronotum distributed as follows: one large median boss in the interhumeral region, two series of paired protuberances placed caudad; caudal process extending beyond the caudal femora a distance equal to their length. Tegmina elongate, acuminate, apex narrowly rounded, surface coarsely reticulate. Wings reaching to the tip of pronotal process. Cephalic femora with the carinæ undulate. Median femora slenderer than the cephalic and with the carinæ undulate. Caudal femora rather slender, sparsely granulate, carinæ not undulate or dentate, femoral lobe low and subobsolete, external pagina and dorso-lateral face with strong oblique sculpture; tibiæ with the margins expanded, lamellate, unarmed but very finely serrate; metatarsi about half again as long as the remaining tarsal joints.

General color bistre, obscurely marked on the lateral carinæ and the pronotal spines with ferruginous. Cephalic and median limbs with several obscure bands of wood brown. Caudal tarsi, margins and proximal portions of the tibiæ and two obscure bands on the dorsal aspect of the femora wood brown.

#### *Measurements.*

Length of body, . . . . .	15	mm.
Length of pronotum, . . . . .	21.5	"
Humeral width of pronotum, . . . . .	4	"
Greatest width of pronotum (including spines), . . . . .	6.8	"
Length of caudal femora, . . . . .	8.5	"

A paratypic female, identical with the type in all respects, has also been examined.

I take pleasure in dedicating this striking species to the collector, Dr. W. L. Abbott, who by his tireless energy has placed in the hands of American zoologists an enormous amount of valuable exotic material.

**CRIOETETIX** Bolivar.

1887. *Criotettix* Bolivar, Ann. Soc. Entom. Belg., XXXI, pp. 193, 226.

Included *tricarinatus*, *nexuosus*, *borrei*, *nigellus*, *saginat*<sup>us</sup>, *miliaris*, *baeri*, *subulatus*, *vidali*, *perminutus*, *rugosus*, *insidiosus*, *pulcher*, *pullus*, and *clavitarsis* Bolivar, *nodulosus* Stål, *brevis* and *emarginatus* Haan and *bispinosus* Dalman. Of these the last is the oldest and probably the best known and may with justice be considered the type.

**Criotettix bispinosus** (Dalman).

1818. *Acrydium bispinosum* Dalman, Kongl. Vetenskaps Academiens Handlingar, 1818, p. 77. [East India.]

Batu Sangkar, Tanah Datar, Padangsche Bovenland, Sumatra, August–September, 1901. (A. C. Harrison, Jr., and Dr. H. M. Hiller.) [A. N. S. Phila.] One female.

This species has a very extensive range, the territory covered including Burma, Sumatra, Java, Borneo and China. The only previous Sumatran record was from Batang Singalang, mentioned by Haan.

**Criotettix bispinosus japonicus** (Haan).

1839–44. *A[cr]idium* (*Tetrix*) *bispinosum* var. *Japonica* Haan, Bijdragen Kennis Orthoptera in Verhandl. Natuurl. Geschied., p. 169.

Loo Choo Islands, Japan. (Through Y. Hirase.) Nine males, eight females. [A. N. S. Phila., and Hebard Coll.]

These specimens represent a well-marked geographic race of *bispinosus*, characterized by the more apparent linear rugosities on the pronotum and the slightly broader fastigium.

Section **Metrodoræ**.**SYSTOLEDERUS** Bolivar.

1887. *Systolederus* Bolivar, Ann. Soc. Entom. Belg., XXXI, pp. 194, 234.

Included *angusticeps* and *uncinatus* Stål, *cephalicus* Haan, and *ophthalmicus*, *haani* and *languidus* Bolivar; of which *haani* is well figured and may be considered the type.

**Systolederus cephalicus** (Haan).

1839–44. *A[cr]idium* (*Tetrix*) *cephalicum* Haan, Bijdragen Kennis Orthoptera, in Verhandl. Natuurl. Geschied., p. 169. [Batang Singalang, Sumatra.]

Batu Sangkar, Tanah Datar, Padangsche Bovenland, Sumatra. August–September, 1901. (A. C. Harrison, Jr., and Dr. H. M. Hiller.) [A. N. S. Phila.] Three males, four females.

These specimens appear to represent this species which is known only from Haan's brief description. Bolivar, having never seen the species, was unable to add any information to the original description. The possession of a pair of more or less apparent post-humeral spots of velvety black is shared by all the specimens, which are, however, somewhat smaller than Haan's measurements.

**MAZARREDIA** Bolivar.

1887. *Mazarredia* Bolivar, Ann. Soc. Ent. Belg., XXXI, pp. 194, 236.

Included *sculpta*, *remissa*, *semperi*, *abbreviata*, *insularis*, *atypa*, *lauta*, *gemella*, *celebica* and *centrosa* Bolivar, *gallinacea*, *fuscipes* and *rufipes* Stål. As *gemella* is the only species figured it can be selected as the type.

**Mazarredia aptera** n. sp.

Type: ♂; Island of Labuan, British North Borneo. [Hebard Collection.]

Differing from all the previously known species of the genus, except *M. minuta* and *truncata* Bolivar, in the absence of tegmina and wings, and from these two species it can readily be distinguished by the greater size and acute caudal process of the pronotum.

Size medium; form depressed; surface scabrous. Head with the occiput not elevated above the level of the pronotum; vertex truncate, about equal to one of the eyes in width, median carina projecting considerably beyond the cephalic margin, lateral carinae distinct but by no means as apparent as the median, no frontal carina present; frontal costa forked slightly above the ocelli, rami considerably divergent, moderately arcuate when viewed laterad and sinuate dorsad; antennae inserted on a level with the ventral margin of the eyes; median ocellus placed distinctly ventrad of the antennae, paired ocelli placed between the middle of the eyes; eyes subovoid, moderately prominent. Pronotum depressed above, subconcave; cephalic margin very broadly and obtusely angulate; humeral angle not prominent; caudal process not exceeding the apex of the abdomen and not reaching the tips of the caudal femora, gradually acuminate to a short distance from the apex where it becomes sharply acuminate with the apex hastate and slightly subulate; posterior angle of the lateral lobes moderately produced and rectangularly extended when viewed dorsad, apically truncate, inferior sinus rectangulate, elytral sinus represented by a very slight emargination; median carina slight, cephalad of the humeral angles very slightly arcuate and elevated, undulate caudad; lateral carinae obsolete cephalad, arcuate caudad of the humeral angles. No tegmina or wings present. Cephalic and median femora not appreciably undulate. Caudal femora short, strongly inflated, dorsal and ventral margins evenly arcuate, femoral lobe short, blunt, external pagina and dorso-lateral face with distinct but rather low sculpture; tibiae well supplied with low blunt spines, canthi sparsely and weakly serrulate; metatarsi equal to the third tarsal joint in length, pulvilli low.

General color vandyke brown, obscurely marked along the carinæ of the pronotum with and having annulations on the limbs of pale cinnamon. The pale annulations on the caudal femora are much narrower than the dark bands, and on the caudal tibiæ but one distinct annulus is present, that being preapical; genicular regions of the caudal femora blackish.

*Measurements.*

Length of body, . . . . .	11 mm.
Length of pronotum, . . . . .	9.8 "
Width across humeral angles of the pronotum, . . . . .	4 "
Greatest width of pronotum, . . . . .	5.2 "
Length of caudal femora, . . . . .	7.8 "

The type is the only specimen of this species seen.

**CHIRIQUIA** Morse.

1900. *Chiriquia* Morse, Biol. Cent.-Amer., Orth., II, pp. 5, 6.

Type.—*C. serrata* Morse.

**Chiriquia serrata** Morse.

1900. *Chiriquia serrata* Morse, Biol. Cent.-Amer., Orth., II, p. 7, fig. [Castillo, Nicaragua; Volcan de Chiriqui, 2,500 to 4,000 feet, Panama.

Carrillo, Costa Rica. [Hebard Coll.] One immature male.

This individual presents several characters which are more or less at variance with Morse's figure, the head being more compressed and with the carinæ of the vertex developed into distinct erect processes, and the median carina of the pronotum has but two distinct undulations. As the specimen is immature these differences in all probability are due to the stage of the insect.

**AMORPHOPUS** Serville.

1839. *Amorphopus* Serville, Orthoptères, p. 756.

Type.—*A. notabilis* Serville.

**Amorphopus antennatus** Bolivar.

1887. *A[morphopus] antennatus* Bolivar, Ann. Soc. Entom. Belg., XXXI, p. 251, figs. 19, 19a-b. [Upper Amazon.]

Venezuela. [A. N. S. Phila.] One female.

**MITRARIA** Bolivar.

1887. *Mitraria* Bolivar, Ann. Soc. Ent. Belg., XXXI, pp. 194, 253.

Included *M. producta* Bolivar and *phyllocera* (Haan), of which the former may be considered the type, as *phyllocera* was apparently unrepresented in the material studied by Bolivar.

**Mitraria pontificalis** n. sp.

Type: ♀; Mount Coffee, Liberia. February, 1897. (R. P. Currie.) U. S. Nat. Mus., No. 8113.]



Differing from either of the previously known species of the genus in the unarmed margins of the cephalic process, and in the smaller size. The generic diagnosis given by Bolivar will require some modification to include this form, as the antennæ are inserted between the eyes and the metatarsi of the caudal limbs are distinctly longer than the third tarsal joint.

Size rather small; form elongate; surface finely granulose. Head with the cephalic process produced a distance before the eyes equal to the greatest length of one of the latter, depressed dorsad, acute, the apex rounded, margins entire and carinate, median carina distinct; face distinctly declivent; frontal costa forked slightly cephalad of the ocelli; rami slightly divergent; median ocellus inserted on a level with the ventral margin of the eyes, paired ocelli placed directly between the eye; eyes subtrigonal, hardly prominent; antennæ short, very slender, apex acute, inserted directly between the eyes and equidistant from them and the frontal costa. Pronotum slender, very elongate, caudal process extending beyond the tips of the caudal femora a distance about equal to their length, very slightly subulate; cephalic margin very broadly obtuse-angulate; dorsum slightly arched transversely; median and lateral carinæ distinct, the interhumeral region bearing a pair of short accessory carinæ placed on each side of the median carina; lateral lobes with the posterior angle acute, inferior sinus rectangulate, elytral sinus slight. Tegmina cylindrical ovate. Wings extending slightly beyond the apex of the caudal process of the pronotum. Cephalic and median femora with their margins very slightly undulate. Caudal femora slender, margins evenly curved, genicular spine distinct and acute, femoral lobe distinct, external pagina with distinct but irregular diamond-shaped sculpture; tibiæ slightly sinuate, armed apically with distinct spines, canthi minutely serrulate; metatarsi equal to the remaining tarsal joints in length, the two apical pulvilli each slightly longer than the basal one.

General color wood brown, irregular dotted and blotched along the carinæ with vandyke brown; face blackish brown; eyes ecru drab.

*Measurements.*

Length of body, . . . . .	10.2 mm.
Length of pronotum, . . . . .	13 "
Humeral width of pronotum, . . . . .	2 "
Length of posterior femora, . . . . .	5.2 "

A paratypic female has been studied in addition to the type.

Section **Tettigiæ**.**PROTOTETTIX** Bolivar.

1887. *Prototettix* Bolivar, Ann. Soc. Ent. Belg., XXXI, pp. 195, 255.

Included *P. fossulatus* Bolivar, and *impressus* and *lobulatus* (Stål); of which Bolivar's species may be considered the type.

**Prototettix fossulatus** Bolivar.

1887. *P[rototettix] fossulatus* Bolivar, Ann. Soc. Ent. Belg., XXXI, p. 256.  
[Apiahy, Sao Paulo, Brazil.]

Lota, Chile. January, 1904. (C. S. Reed.) [A. N. S. Phila.]  
Three males.

These specimens fully agree with Bolivar's description, except that the pagina of the caudal limbs are elevated into plicate ridges as in *lobulatus*. From *lobulatus*, however, they differ in the partially hidden tegmina, the sinuate ventro-caudal margins of the pronotum and the more apparent median carina. As the original description was based on a female these specimens are materially smaller than the measurements given by Bolivar.

**ACRYDIUM** Geoffroy.

1764. *Acrydium* Geoffroy, Hist. Abrég. Insect, I, p. 390.<sup>6</sup>

Included six non-binomial species, the genus being later restricted by Fabricius<sup>7</sup> to include but two species, *bipunctatum* and *subulatum*, of which two the latter may be considered the type.

**Acrydium japonicum** (Bolivar).

1887. *T[tettix] japonicus* Bolivar, Ann. Soc. Ent. Belg., XXXI, p. 263.  
[Japan.]

Kyoto, Japan. (Y. Hirase, No. 41.) [A. N. S. Phila., and Hebard Coll.] Twenty-nine males, eighteen females.

This species is a close relative of *A. türki* (Krauss), and also bears a superficial resemblance to the American genus *Neotettix*. It is, however, a member of the genus *Acrydium* in the restricted sense.

**PARATETTIX** Bolivar.

1887. *Paratettix* Bolivar, Ann. Soc. Ent. Belg., XXXI, pp. 195, 270.

Included twenty-eight species, of which *peruvianus* and *cayennensis* have been removed to *Allotettix*, *schochii* made the type of *Clypeotettix*, and *fallax* and *aztecus* placed in *Telmatettix*. Of the remaining species the only European one can be considered the type, *meridionalis* Rambur.

<sup>6</sup> The edition of 1762 is not available for examination, but that of 1764 is said to be identical, except for a few minor details.

<sup>7</sup> *Syst. Ent.*, pp. 278, 1775.

**Paratettix frey-gessnerii** Bolivar.

1887. *P[aratettix] Frey-Gessnerii* Bolivar, Ann. Soc. Entom. Belg., XXXI, p. 276. [Cuba.]

Portland, Jamaica. (Johnson and Fox.) [A. N. S. Phila.] One male.

The similarity of this species to the Old World *P. meridionalis* is, as noticed by Bolivar, very striking.

**Paratettix caudatus** (Saussure).

1861. *T[ettix] caudata* Saussure, Revue et Magasin de Zoologie, 2e ser., XIII, p. 399. [Guiana.]

Bartica, British Guiana. April 2 and May 11 and 12, 1901. (R. J. Crew.) [A. N. S. Phila.] Two males, three females.

One of these specimens has the coloration more contrasted than the others, the interhumeral region being bright ochraceous margined posteriorly by a broken line of velvety black.

**Paratettix mexicanus** (Saussure).

1861. *T[ettix] mexicana* Saussure, Revue et Magasin de Zoologie, 2e ser., XIII, p. 400. [Tropical Mexico.]

Monte Redondo, Costa Rica. January, 1903. (C. F. Underwood.) [A. N. S. Phila.] Two males.

This species has previously been recorded from Volcan de Irazu, Costa Rica.

**Paratettix scaber** (Thunberg).

1815. *A[crydium] scabru.n* Thunberg, Nova Acta Reg. Soc. Scient. Upsal., VII, p. 159. [Cape of Good Hope.]

Congo. [U. S. Nat. Mus.] Two males, three females.

This species has been recorded from Gaboon, Zanzibar, Caffreria, Lourenco Marquez, and East Indies by Bolivar, and from Adeli, Togoland, by Karsch.

**Paratettix histricus** (Stål).

1860. *Tettix histrica* Stål, Kong. Svenska Freg. Eugenies Resa, Ins., p. 347. [Java.]

Loo Choo Islands, Japan. (Through Y. Hirase, No. 71.) [A. N. S. Phila., and Hebard Coll.] Two males, seven females.

This has previously been recorded from localities reaching from Sumatra to the Philippines, including North Australia and New Caledonia.

**CLYPEOTETTIX** Hancock.

1902. *Clypeotettix* Hancock, The Tettigidae of North America, pp. 36, 124.

Type.—*Paratettix schocki* (laps. p. *schochii*) Bolivar.

**Clypeotettix schochii** (Bolivar)?

1887. *P[aratettix] schochii* Bolivar, Ann. Soc. Ent. Belg., XXXI, p. 274 [Guatemala; Mexico.]

Venezuela. [A. N. S. Phila.] One male.

Chinandega, Nicaragua. (C. F. Baker.) [A. N. S. Phila.] One male.

These specimens are questionably assigned to this species, as they are much smaller and more rugose than Mexican individuals which undoubtedly represent *schochii*. It is very probable the two above listed specimens represent a new species, but in view of the known variability of *schochii* I should hesitate to describe them.

#### **HEDOTETTIX** Bolivar.

1887. *Hedotettix* Bolivar, Ann. Soc. Ent. Belg., XXXI, pp. 195, 283.

Included ten species, of which the first and oldest—*gracilis* Haan—may be considered the type.

***Hedotettix gracilis*** (Haan).

1839-44. *A[cridium]* (*Tetrix*) *gracile* Haan, Bijdragen Kennis Orthoptera, in Verhandl. Natuurl. Geschied., p. 169. [Krawang, Tondano.]

Trong, Lower Siam. (Dr. W. L. Abbott.) [U. S. Nat. Mus.] One male.

Batu Sangkar, Tanah Datar, Padangsche Bovenland, Sumatra, August-September, 1901. (A. C. Harrison, Jr., and Dr. H. M. Hiller.) [A. N. S. Phila.] One male.

This species has been recorded from Burma by Brunner,<sup>8</sup> and if he is correct in synonymizing *H. festivus* it is also found in Ceylon. As far as the character of the median femora goes, the specimens mentioned above support his contention, as, although true *gracilis*, they have the median femora heavier and with the carinæ more arcuate than in the cephalic pair. The cephalic margin of the pronotum is obtuse-angulate in both specimens.

#### **ALLOTETTIX** Hancock.

1899. *Allotettix* Hancock, Ent. News., X, p. 276.

Type.—*Allotettix prolongatus* Hancock.

***Allotettix peruvianus*** (Bolivar).

1887. *P[aratettix]* *peruvianus* Bolivar, Ann. Soc. Ent. Belg., XXXI, p. 272. [Pumamarca, Peru.]

Carrillo, Costa Rica. [Hebard Coll.] Seven males, five females.

This species has previously been recorded from Panama and Darien, in addition to the type locality.

***Allotettix cayennensis*** (Bolivar).

1887. *P[aratettix]* *cayennensis* Bolivar, Ann. Soc. Ent. Belg., XXXI, p. 273. [Cayenne.]

Bartica, British Guiana. April and May, 1901. (R. J. Crew.) [A. N. S. Phila.] Eight males, three females.

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<sup>8</sup> *Ann. Mus. Civ. Stor. Nat. Genova*, XXXIII, p. 111.

Section **Batrachideæ**.**TETTIGIDEA** Scudder.

1862. *Tettigidea* Scudder, Boston Journ. Nat. Hist., VII, p. 476.

Type.—*T. lateralis* (Say).

**Tettigidea pulchella** n. sp.

Type: ♀; Bartica, British Guiana. April 27, 1901. (R. J. Crew.)  
[A. N. S. Phila.]

Differing from all the other species of the genus in the truncate fastigium.

Size rather small; form moderately elongate; surface scabrous. Head with the vertex about equal to one of the eyes in width, truncate cephalad and projecting but slightly cephalad of the eyes, not excavated, median carina distinct and rather prominent, frontal carina distinct; frontal costa arcuate when viewed laterad, rami very slight and very gradually diverging; antennæ inserted between the ventral portions of the eyes; eyes subtrigonal in outline, slightly prominent. Pronotum subectate, caudal process reaching the tips of the ovipositors but not of the caudal femora; cephalic margin rectangulate, produced centrally into an acute spine; median carina distinct, moderately arcuate cephalad; lateral carinæ obsolete between the sulci; humeral angles not projecting; posterior process of the lateral lobes rectangulate, inferior sinus long but not very deep, elytral sinus acutely cut. Tegmina cylindrical ovate, apex broad and blunt. Wings slightly exceeding the caudal process of the pronotum. Cephalic femora with the dorsal sulci distinct but shallow. Caudal femora rather short and heavy, the dorsal outline strongly arcuate, the ventral outline nearly straight, femoral lobe sharp and projecting, genicular spine short and blunt, margins finely serrate, external pagina and dorso-lateral face shallowly but distinctly sculptured; tibiæ rather strongly armed, canthi serrate; metatarsi equal to the third joint in length.

General color bistre, inclining toward cinnamon below; antennæ tawny proximad, blackish distad; cephalic and median limbs more or less distinctly annulate with the darker shade on a cinnamon ground.

*Measurements.*

Length of body, . . . . .	9.8 mm.
Length of pronotum, . . . . .	9 "
Humeral width of pronotum, . . . . .	2.5 "
Length of caudal femora, . . . . .	6 "

The type is the only specimen which has been examined.

**SAUSSURELLA** Bolivar.

1897. *Saussurella* Bolivar, Ann. Soc. Ent. Belg., XXXI, pp. 196, 303.

Type.—*S. cornuta* (Haan).

**Saussurella sumatrensis** Bolivar.

1898. *Saussurella sumatrensis* Bolivar, Ann. Mus. Civ. Stor. Nat. Genova, XXXIX, p. 80. [Pangherang-Pisang, Sumatra.]

Goenong Soegi, Lampong, Sumatra. October–November, 1901. (A. C. Harrison, Jr., and Dr. H. M. Hiller.) [A. N. S. Phila.] Two males.

As the specimens examined by Bolivar were females, the measurements of a male individual may be of interest. Length of body 12.5 mm., length of pronotum 16.5, length of pronotal process 2.7, length of caudal femora 7.

Section **Tripetaloceræ**.**DISCOTETTIX** Costa.

1864. *Discotettix* Costa, Annuario Mus. Zool. Univ. Napoli, II, p. 59.

Type. *D. armatus* Costa = *Tetrix belzebuth* Serville.

**Discotettix belzebuth** (Serville).

1839. *Tetrix Belzebuth* Serville, Orthoptères, p. 759. [Java.]

Kina Balu, British North Borneo. [Hebard Coll.] One male, two females.

Island of Labuan, British North Borneo. [Hebard Coll.] One female.

One of the Kina Balu females has the pronotum not exceeding the tips of the caudal femora.

Subfamily **EUMASTACINÆ**.Section **Choroetypi**.**ORCHETYPUS** Brunner.

1898. *Orchetypus* Brunner, Abhandl. Senckenb. Naturfor. Gesell., XXIV, heft 2, p. 220.

Included *O. rotundatus* and *subtruncatus* Brunner, of which the latter may be considered the type as it is figured.

**Orchetypus ocreatus** n. sp.

Type: ♀; Luebo, Congo. (D. W. Snyder.) [U. S. Nat. Mus., No. 8114.]

Closely allied to the Ceylonese *O. ceylonicus* Karsch, but differing in the strongly sinuate caudal portion of the median carina of the pronotum, the larger spines on the caudal tibiae, the more subequal tegmina and the shorter caudate apex of the wings.

Size large; form compressed; surface rugulose. Head with the occiput and vertex ascending; fastigium produced, elevated, not retrorse, slightly antrorse, acute, apex truncate with a slight median emargination, median carina present dorsad and cephalad; face flattened, slightly concave, much as in *O. ceylonicus*; infra-ocular carinæ very sharp; frontal costa with a flask-shaped expansion between the antennæ; antennæ short, but slightly exceeding the greatest length of the eye; eyes crudely elongate-ovate, distinctly shorter than the infra-ocular portion of the genæ, little prominent. Pronotum strongly compressed; median crest strongly elevated, produced over the head almost to the tip of the fastigium, very slightly arcuate in the cephalic half, bisinuate on caudal half; caudal process acute, slightly recurved at the apex; lateral lobes about as high as long, cephalic and caudal margins straight, inferior margin truncato-sinuate. Tegmina elongate, lanceolate; apex acuminate, narrowly rounded, exceeding the tips of the caudal femora; costal margin strongly dilated proximad. Wings equal to the tegmina in length, tips caudal and extending beyond the major portion of the wing a distance equal to one-fifth the total length of the member. Ovipositor valves with the margins crasso-dentate. Cephalic femora dilated, pyramidical in outline the apex proximal; tibiæ slightly bowed. Median femora with the dorsal carina slightly elevated and arcuate, the cephalo-ventral carina moderately lamellate distad; tibiæ straight. Caudal femora heavy, dorsal carina arcuate and strongly serrato-dentate, ventral carina minutely serrate, external pagina with an irregular rhomboid pattern; tibiæ slightly sinuate distad, proximal section with an acute trigonal lobe on the dorsal surface, spines on the internal margin larger than those on the external; metatarsi slightly shorter than the remaining tarsal joints.

General color tawny-olive, suffused on the dorsal half of the pronotum with raw umber; a broad bar of buff covering the genæ and the lateral lobes of the pronotum, the distal half of the caudal femora, the proximal half of the caudal tibiæ and the cephalic and median femora irregularly blotched and suffused with the same tint.

#### *Measurements.*

Length of body, . . . . .	38.5 mm.
Length of pronotum, . . . . .	13 "
Greatest depth of pronotum, . . . . .	11 "
Length of tegmina, . . . . .	21.5 "
Length of caudal femora, . . . . .	17 "

The type is unique.

**PLAGIOTRIPTUS** Karsch.

1889. *Plagiotriptus* Karsch, Entom. Nachr., XV, p. 8.

Type.—*Plagiotriptus hippiscus* (Gerstaecker).

**Plagiotriptus hippiscus** (Gerstaecker).

1873. *Chorætypus hippiscus* Gerstaecker, Von der Decken's Reisen in Ost-Afrika, Bd. III, Abth. 2, p. 42, taf. 2, fig. 8. [Mombasa.]

Mombasa, East Africa. [Hebard Coll.] One female.

Section **Erianthi**.**ERIANTHUS** Stål.

1876. *Erianthus* Stål, Ofversigt af K. Vetensk.-Akad. Förhandlingar, 1876, No. 3, p. 55.

Type.—According to Burr<sup>9</sup> *Mastax guttata* Westwood.

**Erianthus nipponensis** n. sp.

Type: ♀; Nikko, Hondo, Japan. [U. S. Nat. Mus., No. 8115.]

Belong to the group comprising *E. guttatus* Westwood, *flavoinflatus* Brunner and *acutipennis* Saussure. From all of these it differs in having the fastigium unreflexed; from *guttatus* it also differs in the lower and more obtuse fastigium; from *flavoinflatus* in the smaller size, obliquely truncate apical portion of the tegmina, and non-dentate cephalic margin of the pronotum, and from *acutipennis* in the form of the tips of the tegmina and the rotundato-angulate caudal margin of the pronotum. Considerable affinity exists also with *E. obtusus* Burr, but that species has the fastigium obtuse.

Size rather large; form elongate. Head with the occiput and vertex sharply ascending, the fastigium elevated above the eyes a distance equal to half the length of the latter, not reflexed, rectangulate, a median carina present on both the dorsal and cephalic aspects; frontal costa with the interantennal expansion elongate pyriform, the costal carinae apparent almost to the clypeus; antennæ inserted slightly below the middle of the eyes; eyes elongate ovate, moderately prominent. Pronotum hardly selliform, slightly tectate, median carina distinct, somewhat undulate; cephalic margin sinuato-truncate with a distinct median emargination; caudal margin obtuse-angulate with the angle rounded; dorsal surface strongly rugose, transverse sulci not apparent; lateral lobes slightly longer than the caudal depth, inferior margin obliquely sinuate, cephalo-ventral angle broadly rounded, caudo-ventral angle rectangulate. Tegmina reaching to the apex of the abdomen, enlarged apically and obliquely truncate. Wings ample, as long as the tegmina. Ovipositor valves with the teeth decidedly crassate and

<sup>9</sup> *Anal. Soc. Españ. Hist. Nat.*, XXVIII, p. 103.



blunt; subgenital plate acute, with a distinct median sulcus. Caudal femora slender, falling slightly short of the apex of the abdomen, the dorsal and dorso-lateral carinæ sparsely serrato-dentate, genicular lobes spinose, genicular spine acute; tibiæ slightly sinuate, the spines of the internal margin longer than those of the external margin; metatarsi about equal to the remaining tarsal joints in length, dorsal carinæ serrato-dentate.

General color raw umber; the head inclining toward cinnamon, eyes vandyke brown; tegmina with a preapical hyaline spot on both the cephalic and caudal margins; caudal femora wood brown with three obscure annuli of darker brown; caudal tibiæ of the general tint with several obscure annuli of wood brown.

#### Measurements.

Length of body, . . . . .	30	mm.
Length of pronotum. . . . .	4.2	"
Length of tegmina, . . . . .	22	"
Length of caudal femora, . . . . .	15	"

The type is unique.

**Erianthus malcolmi** Bolivar.

1903. *Erianthus Malcolmi* Bolivar, Boletin Soc. Españ. Hist. Nat., III, p. 302. [Malacca, Kwala, Lumpur, Strait Settlements.]

Trong, Lower Siam. (Dr. W. L. Abbott.) [U. S. Nat. Mus.] Three males.

These specimens fully agree with Bolivar's description, except that the face, the lateral lobes of the pronotum and the anal area of the tegmina are suffused with dull greenish, which is probably due to the condition of the specimens.

#### Section **Erucii**.

##### **ERUCIUS** Stål.

1875. *Erucius* Stål, Bihang till K. Svenska Vetens.-Akad. Handl., III, No. 14, p. 36.

Type.—*Mastax agrionoides* Haan.

**Erucius vitreus** (Westwood).

1845. *Mastax vitrea* Westwood, Arcana Entom., I, p. 100, Pl. 26, fig. 2. [Java.]

Goenong Soegi, Lampong, Sumatra. October–November, 1901. (A. C. Harrison, Jr., and Dr. H. M. Hiller.) [A. N. S. Phila.] Two males, one female.

It is worthy of note that the specimens examined by Brunner<sup>10</sup> and

<sup>10</sup> *Abhandl. Senckenb. Naturf. Gesellsch.*, XXIV, heft 2, p. 227.

considered *vitreus* are not Westwood's species, an examination of the measurements of the two making this fact very apparent. The male of *vitreus* has the subgenital plate acuminate instead of truncate as described by Brunner.

***Erucius magnificus* n. sp.**

?1898. *Erucius vitreus* Brunner, Abhandl. Senckenb. Naturf. Gesellsch., XXIV, heft 2, p. 227.

Type: ♀; Island of Labuan, British North Borneo. [Hebard Collection.]

This species may be separated from *vitreus* Westwood by its larger size and more ample tegmina and wings. As no males have been examined it is possible that it represents the female of *E. pictus* Saussure,<sup>11</sup> based on the male only.

Size large; form as usual in the genus. Head strongly elevated, the occiput and vertex sharply ascending, the interocular region quite narrow, about half as wide again as the frontal costa at its widest part; frontal costa narrow, strongly compressed at the ocelli, subequal below except for a slight widening at the median ocellus, rather deeply sulcate; antennæ very short, the insertion strongly crowded between the eyes and the frontal costa; eyes subelliptical, moderately prominent. Pronotum selliform; cephalic margin sinuato-truncate, caudal margin arcuate; prozona with three distinct transverse ridges, metazona reticulate with a slight median carina; lateral lobes slightly deeper than long, cephalo-ventral angle obtuse, caudo-ventral angle rectangulate, ventral margin oblique, sinuate. Tegmina large, exceeding the apex of the abdomen by more than one-fourth their length, considerably expanded at the tips, costal margin strongly arcuate distad, apex obliquely truncate. Wings equal to the tegmina in length. Ovipositor valves punctate, the margins crasso-dentate; subgenital plate apically acute with a slight median longitudinal depression. Caudal femora slender, falling slightly short of the tips of the ovipositor valves, the distal half slender, dorsal and dorso-lateral carinæ sparsely serrato-dentate; tibiæ slightly sinuate in the proximal half, external spines decidedly smaller than the internal ones; metatarsi slightly shorter than the remaining tarsal joints, superior carinæ serrato-dentate.

General color (specimen discolored) bistre, the face washed with cinnamon; tegmina tawny olive, with two faint oblique apical bars of umber parallel with the apical margin; caudal femora with faint traces of several annuli of a light shade; caudal tibiæ marmorate with umber on a wood brown ground.

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<sup>11</sup> *Revue Suisse de Zoologie*, XI, fasc. I, p. 85, fig. 13. [Nanza-Badan, Borneo.]

*Measurements.*

Length of body, . . . . .	30.5 mm.
Length of pronotum, . . . . .	4.8 "
Length of tegmina, . . . . .	30.5 "
Length of caudal femora, . . . . .	16.5 "

Two females of this species have been studied, the additional specimen being in every way identical with the type.

***Erucius dimidiatipes* Bolivar.**

1898. *Erucius dimidiatipes* Bolivar, Ann. Mus. Civ. Stor. Nat. Genova, XXXIX, p. 81. [Si-Rambé, Sumatra.]

Goenong Soegi, Lampong, Sumatra. October-November, 1901. (A. C. Harrison, Jr., and Dr. H. M. Hiller.) [A. N. S. Phila.] Two males.

The basal portion of the caudal femora of these specimens have retained their original color, which is Chinese orange. By an unfortunate transposition in Burr's key the femora of this species are described as "basi nigra, apice pallida," while Bolivar's original reads: "Femora postica pallida, dimidio apicali nigro."

Section **Eumastaces.****EUMASTAX** Burr.

1899. *Eumastax* Burr, Anal. Soc. Españ. Hist. Nat., XXVIII, p. 257.

Type.—*Mastax tenuis* Perty.

***Eumastax dentatus* Saussure.**

1903. *Eumastax dentatus* Saussure, Revue Suisse de Zoologie, XI, fasc. I, p. 91. [Palmares, Costa Rica.]

Carrillo, Costa Rica. [Hebard Collection.] One male, one female. Costa Rica. (Schild and Bergdorf.) [U. S. Nat. Mus.] One male.

The female individual is somewhat smaller than Saussure's measurements, but otherwise is identical.

**PARAMASTAX** Burr.

1899. *Paramastax* Burr, Anal. Soc. Españ. Hist. Nat., XXVIII, p. 268.

Type.—*Mastax nigra* Scudder.

***Paramastax magna* (Giglio-Tos).**

1898. *M[astax] magna* Giglio-Tos, Bollett. Mus. Zoolog. Anat. Comp., XIII, No. 311, p. 38. [Valley of Santiago, Ecuador.]

Piches and Perene Valleys, Peru, 2,000-3,000 feet. (Soc. Geog. de Lima.) [U. S. Nat. Mus.] One male.

The male of this species is said by Burr to have the face unicolor, but in the individual before me it and the genæ are marked with a broad band of yellowish, as in *læta*, *personata* and other species. The charac-

ters of the cerci and the coloration of the limbs, however, place it in *magna*, the absence of the facial decoration in Burr's species possibly being due to the fact that his specimens were from Mexico, and for that reason representing another species. As far as can be made from Giglio-Tos' diagnosis of the female this specimen is his species.

**MASYNTES** Karsch.

1889. *Masyntes* Karsch, Entom. Nachr., XV, pp. 26, 31.

Type.—*Mastax gundlachii* Scudder.

**Masyntes borellii** Giglio-Tos.

1897. *Masyntes Borellii* Giglio-Tos, Bollett. Mus. Zool. Anat. Comp. Torino, XII, No. 302, p. 17. [San Pedro, Paraguay.]

Chapada, Matto Grosso, Brazil. April. (H. H. Smith.) [U. S. Nat. Mus.] One male, one female.

The female specimen agrees very well with the original description, except that the size is slightly less. The subgenital plate of the male is more produced and acute than in *tigris*, while the fastigium is more distinctly truncate, with a very slight median emargination which is more apparent in the male than in the female. The orange maculation on the dorsal surface involves two segments in the male instead of one as in the female, and the lateral lobes of the pronotum are subequal in depth, not produced ventrad as seen in *M. tigris*.

**Masyntes tigris** Burr.

1899. *Masyntes Tigris* Burr, Anal. Soc. Españ. Hist. Nat., XXVIII, p. 276. [Paraguay.]

Corumbá, Matto Grosso, Brazil. March (Highland). (H. H. Smith.) [U. S. Nat. Mus.] Two males.

Chapada, Matto Grosso, Brazil. October (Campo). (H. H. Smith.) [U. S. Nat. Mus.] One male.

The Chapada individual has the tegmina but half the length of those organs in the Corumbá specimens. This species is considerably larger than *borellii*, but very closely related.

Section **Thericleis**.

**THERICLES** Stål.

1875. *Thericles* Stål, Bihang till K. Svenska Vet.-Akad. Handlingar, III No. 14, p. 35.

Included *T. obtusifrons* and *compressifrons* Stål; the latter since having been removed to *Pseudothericles* leaves as the type *obtusifrons*.

**Thericles gnu** Karsch.

1896. *Thericles gnu* Karsch, Stettin Entom. Zeit., LVII, p. 248. [Ru Nsororo, 2,000 m., East Central Africa.]

Luebo, Congo. (D. W. Snyder.) [U. S. Nat. Mus.] One male, one female.

As far as can be determined from Karsch's rather meagre description of a female, the above specimens represent his species. Difference is noted in the unicolorous face, the limbs, however, being suffused with blackish, which is limited on the caudal femora to the distal half. The male is gaily colored as in *T. zebra* and is but slightly smaller, but the genæ are solid yellowish from the eye down, the caudal margin of the lateral lobes of the pronotum are more broadly yellowish than the cephalic, the ventral margin is blackish, and the lateral aspect of the proximal abdominal segments are almost solid black. The apex of the male abdomen is strongly clavate, recurved and directed cephalad; the subgenital plate is inflated, subcylindrical, elongate; cerci simple, styliform, hidden under the subgenital plate.

Subfamily PROSCOPINÆ.

**CORYNORHYNCHUS** Brunner

1890. *Corynorhynchus* Brunner, Verhandl. K. K. Zool.-Bot. Gesell., Wien, XL, p. 101.

Included *C. radula*, *hispidus* and *spinosus* Klug, and *hispidulus* and *latirostris* Brunner. Of these *radula* may be considered the type.

*Corynorhynchus radula* (Klug).

"1820. *Proscopia radula* Klug, in Nees ab Esenbeck, Horæ Phys. Berol. p. 20, tab. III, fig. 4. [Rio de Janeiro; Para, Brazil.]"

Rio de Janeiro, Brazil. November. (H. H. Smith.) One male, two females.

One of the female specimens is considerably larger than the other and very materially exceeds Brunner's measurements. No other difference, however, can be detected between it and the other female, which fully agrees with the above-mentioned measurements.

**TETANORHYNCHUS** Brunner.

1890. *Tetanorhynchus* Brunner, Verhandl. K. K. Zool.-Bot. Gesell., Wien, XL, p. 104.

Included *punctatus* Klug, *sublævis*, *propinquus*, *incertus*, *longirostris* and *angustirostris* Brunner. Of these *punctatus* may be considered the type.

*Tetanorhynchus bihastatus* n. sp.

Types: ♂ and ♀; Corumbá, Matto Grosso, Brazil. March (Highland). (H. H. Smith.) [U. S. Nat. Mus., No. 8116.]

Closely allied to *T. humilis* Giglio-Tos from Paraguay,<sup>12</sup> but differing

<sup>12</sup> Co-types of this species received from Dr. Borelli have been used for comparison.

in the finer sculpture, the longer subgenital plate of the male and the more acute supraanal plate of the female.

Size medium; form as usual in the genus; surface finely punctate. Head elongate; rostrum in the male but slightly more than half the length of the remainder of the head, in the female subequal to the remainder of the head, acuminate, apex narrowly rounded, carinæ distinct; eyes elongate-ovate, quite prominent in the male; antennæ very slightly longer than the rostrum in the male, slightly shorter in the female, basal joint distinctly shorter than the eye in the male, slightly shorter in the female. Pronotum with the limbs inserted mesad, cephalic margin broadly rounded. Mesonotum and metanotum slightly strigate. Abdomen with the strigæ absent in the male, faintly marked in the female; supraanal plate of the male acuminate, apex rounded; subgenital plate of the male narrowly produced, needle-like; supraanal plate of the female acuminate, apex very narrowly rounded; ovipositor valves stout, the margins unarmed; subgenital plate of the female broadly arcuate. Cephalic and median limbs subequal in size, shorter than the pronotum. Caudal femora elongate, reaching to the middle of the fifth abdominal segment in the male and of the fourth in the female; caudal tibiæ armed on the margins with fifteen to sixteen spines in the male and twenty in the female.

General color olive-green, in the male washed along the sides of the pronotum and the postocular region of the head with yellowish green.

*Measurements.*

	♂	♀
Length of body, . . . . .	63.5 mm.	91 mm.
Length of head, . . . . .	10.5 "	15 "
Length of rostrum, . . . . .	4 "	7.5 "
Length of pronotum, . . . . .	13.5 "	19 "
Length of cephalic femora, . . . . .	9.7 "	13 "
Length of caudal femora, . . . . .	23 "	27.2 "
Length of caudal tibiæ, . . . . .	24 "	31.5 "
Length of subgenital plate, . . . . .	5 "	

Two specimens of each sex have been examined. The paratypic female has lost both caudal tibiæ, the paratypic male, however, exhibits a spine armament of twenty spines, which is rather different from that of the type. Otherwise the specimens exhibit no striking variation.

***Tetanorhynchus smithi* n. sp.**

Type: ♂; Corumbá, Matto Grosso, Brazil. March (Highland). (H. H. Smith.) [U. S. Nat. Mus., No. 8117.]

Allied to *T. humilis* and *T. bihastatus*, but differing in the more

robust build and the heavier cephalic and median femora. The form of the subgenital plate closely resembles that of *bihastatus*.

Size rather large; form more robust than usual in the genus; surface of thorax, head and limbs distinctly punctate, abdomen very obscurely punctate. Head acuminate; rostrum about half as long as the remainder of the head, tapering, apex blunt, carinate distinct but not sharp; eyes elliptical ovate, rather prominent; antennæ about twice as long as the rostrum, basal joint but slightly more than half the length of an eye. Pronotum with a slight median supracoxal dilation; cephalic margin roundate, shallowly emarginate mesad; caudal margin sinuato-truncate. Mesonotum and metanotum moderately inflated, strigæ distinct and serrato-dentate. Supraanal plate acuminate, apex moderately acute, proximal half with a shallow median emargination; subgenital plate produced, needle-like. Cephalic and median limbs similar, the cephalic pair slightly smaller than the median. Caudal femora elongate, reaching to the middle of the fifth abdominal segment; caudal tibiæ with thirteen spines on the external and twelve to fourteen on the internal margins.

General color pale apple-green, suffused dorsad, on the ventral surface of the rostrum and on the entire dorsum of the abdomen with olive.

#### Measurements.

Length of body, . . . . .	71.5 mm.
Length of head, . . . . .	11.5 "
Length of rostrum, . . . . .	4 "
Length of pronotum, . . . . .	14 "
Length of cephalic femora, . . . . .	11.5 "
Length of caudal femora, . . . . .	25.5 "
Length of caudal tibiæ, . . . . .	29 "
Length of subgenital plate, . . . . .	5.2 "

The type is the only specimen of this species seen.

#### HYBUSA Erickson.

1844. *Hybusa* Erickson, Wiegman's Archiv für Naturgeschichte, X, Bd. II, p. 298.

Type.—*Proscopia occidentalis* Westwood.

#### *Hybusa reedi* n. sp.

Type: ♀; Chile. (E. C. Reed.) [U. S. Nat. Mus., No. 8118.]

Differing from *H. occidentalis* in the slenderer head and pronotum, the rather longer limbs and narrower abdomen.

Size medium; form depressed in the thoracic region; surface rugulose. Head conic, the section caudad of the eyes slightly concave, the margin not distinctly serrate and but slightly rugulose; rostrum but

slightly longer than the eyes, tapering, apex blunt and broad, depressed with very distinct lateral carinæ; face concave; eyes elliptical ovate; antennæ with the basal joint about one-third the length of the eye. Pronotum with the limbs inserted caudad of the middle; cephalic margin rotundate with a median truncation, caudal margin truncate, lateral margins slightly constricted cephalad of the insertion of the limbs. Mesonotum and metanotum fused, strongly impressed rugulose dorsad, depressed. Abdomen somewhat compressed, carinate, subequal, narrower than the meso-metathorax;<sup>13</sup> supraanal plate sagittate; ovipositor valves heavy, blunt, margins unarmed; subgenital plate very slightly rotundato-truncate. Cephalic and median femora very similar in structure, the cephalic pair slightly the larger. Caudal femora slender, reaching nearly to the distal margin of the sixth abdominal segment; caudal tibiæ bearing twenty to twenty-one spines on the external margins, twenty-two on the internal margins.

General color gallstone-yellow, the eyes dull greenish.

*Measurements.*

Length of body, . . . . .	57	mm.
Length of head, . . . . .	9	"
Length of rostrum, . . . . .	2.2	"
Length of pronotum, . . . . .	8.5	"
Length of cephalic femora, . . . . .	8.5	"
Length of caudal femora, . . . . .	22.5	"
Length of caudal tibiæ, . . . . .	22	"

An immature specimen from Cautin, Chile (C. S. Reed; January, 1904; A. N. S. Phila.) I also refer to this species. It is a male, but fully agrees with the type in all essential characters.

**CEPHALOCÆMA** Serville.

1839. *Cephalocæma* Serville, Orthoptères, p. 577.

Type.—*Proscopia sica* Serville.

**Cephalocæma sica** (Serville).

1839. *Proscopia sica* Serville, Orthoptères, p. 577, Pl. 14, fig. 1. [Southern part of Campos Geraes, Brazil.]

Sao Paulo, Sao Paulo, Brazil. September 1 and 7, 1900. (Adolph Hempel.) [A. N. S. Phila.] Two males.

These specimens have the subgenital plate more produced and elongate than in Serville's figure, but otherwise they fully agree with this species.

<sup>13</sup> This condition may be due to the artificial compressing of the abdomen, but it is very evident that the width is by no means as great as in the female of *occidentalis* figured by Brunner (*Verhandl. K. K. Zool.-Bot. Gesell.*, Wien, XL, taf. V, fig. 10).



***Cephalocœma multispinosa* Brunner.**

1890. *Cephalocœma multispinosa* Brunner, Verhandl. K. K. Zool.-Bot. Gesell., Wien, XL, p. 116. [Porto Alegre, Rio Grande do Sul, Brazil.]

Paraguay. [A. N. S. Phila.] One female.

The measurements of the limbs of this specimen are slightly smaller than those given by Brunner.

***Cephalocœma costulata* Burmeister.**

1880. *Cephalocœma costulata* Burmeister, Abhandl. Naturforsch. Gesell., Halle, XV, heft I, p. 9, taf. I, figs. 5-7. [Argentina.]

Sapucay, Paraguay. [Hebard Collection.] One female.

This specimen is equal to Burmeister's and Brunner's maximum measurements and is considerably larger than two individuals of the same sex from Carcarana, Argentina, in the collection of the Academy. The Sapucay specimen, also, has the rostrum longer than in Burmeister's figure, and in the other specimens examined, but not exceeding the maximum given by Brunner.

***Cephalocœma chapadensis* n. sp.**

Types: ♂ and ♀; Chapada, Matto Grosso, Brazil. July (♂) and August (♀). (H. H. Smith.) [U. S. Nat. Mus., No. 8119.]

Closely allied to *C. costulata* but differing in the longer and subequal rostrum, the more marked longitudinal strigæ and the heavier antennæ.

Size medium; surface of the body with distinct longitudinal strigæ, weaker on the pronotum than elsewhere. Head elongate, tapering; rostrum of the male about equal to the length of the head, of the female slightly longer than the remainder of the head, tapering in the male with a rather blunt apex, subequal in the female, apex rather blunt and subcruciform when viewed cephalad; antennæ equal to the rostrum in the male, about two-thirds the length in the female, basal joint slightly less than half the length of the eye; eyes subelliptical; face very slightly concave. Pronotum elongate, slightly broader caudad than cephalad, limbs inserted very slightly caudad of the middle; cephalic margin rotundato-truncate, caudal margin truncate, lateral margins very slightly expanded dorsad of the coxæ; strigæ distinct, but not high. Mesonotum and metanotum little broader than the pronotum, strongly strigate. Abdomen with the strigæ very distinct; supraanal plate of the male sagittate, apex blunt; subgenital plate of the male compressed, elongate, subequal, the apex obscurely bilobate; supraanal plate narrow, produced, apex bluntly rounded; ovipositor valves strongly compressed, margins unarmed; subgenital plate of the female apically rotundato-truncate. Cephalic and median limbs subequal in size and form. Caudal femora of the male slightly

surpassing the apex of the fourth abdominal segment, of the female just reaching the apex of the same segment, slender; caudal tibiæ in the male with sixteen to seventeen spines on the external margins and fourteen to fifteen on the internal, in the female with twelve on the external and nine to ten on the internal margins.

General color wood-brown, the rostrum infusate ventrad.

*Measurements.*

	♂	♀
Length of body, . . . . .	62 mm.	75.5 mm.
Length of head, . . . . .	11.5 "	15.5 "
Length of rostrum, . . . . .	5 "	8.5 "
Length of pronotum, . . . . .	11.5 "	15.5 "
Length of cephalic femora, . . . . .	7.5 "	10.5 "
Length of caudal femora, . . . . .	19 "	23 "
Length of subgenital plate, . . . . .	4 "	

A female from Paraguay, in the collection of the Academy, has also been examined. It differs from the type of that sex only in the smaller size and slightly greater number of tibial spines.

**Cephalocœma flavirostris** (Blanchard).

1851. *Proscopia flavirostris* Blanchard, in Gay, Hist. Fis. Pol. Chile, Zool., VI, p. 61. [Province of Coquimbo, Chili.]

Zemuco, Chile.<sup>44</sup> January, 1904. (Carlos S. Reed.) [A. N. S. Phila.] One male, one female.

As far as can be made out from the poor original description, these specimens probably represent this species. The pronotum and prosternum have a lateral series of yellowish tubercles which is the only character approaching "prothorace . . . lateribus flavescenti."

**Cephalocœma lineata** Brunner.

1890. *Cephalocœma lineata* Brunner, Verhandl. K. K. Zool.-Bot. Gesell., Wien, XL, p. 119, taf. V, fig. 11. [Mendoza, La Plata, Argentina.]

Cordova, Argentine. (F. Schulz.) [U. S. Nat. Mus.] One male, one female.

The female is slightly smaller than the type measured by Brunner. This species is very close to *C. lancea* Burmeister.

**ASTROMA** Charpentier.

1845. *Astroma* Charpentier, Orthop. Desc. et Depict., tab. IV.

Type.—*Astroma chloropterum* Charpentier.

**Astroma chloropterum** Charpentier.

1845. *Astroma chloropterum* Charpentier, Orthop. Desc. et Depict., tab. IV. [Chili.]

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<sup>44</sup> Possibly an error for Temuco, Cautin, Chile.

Colchagua, Chile. December, 1903. (Carlos S. Reed.) [A. N. S. Phila.] Ten males, ten females.

Lota, Concepcion, Chile. January, 1904. (Carlos S. Reed.) [A. N. S. Phila.] One male.

Zemuco (Temuco?), Chile. January, 1904. (Carlos S. Reed.) [A. N. S. Phila.] One male, one nymph.

Cautin, Chile. January, 1904. (Carlos S. Reed.) [A. N. S. Phila.] One male.

Chile. (E. C. Reed.) [U. S. Nat. Mus.] One male, one female.

The above series is rather constant in size and general characters. One female from Colchagua is abnormal in the brevity of the rostrum, that process having been injured and reduced to a mere stump.